

PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY


(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

REC'D 07 SEP 2005

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Applicant's or agent's file reference		FOR FURTHER ACTION		See Form PCT/PEA/416
International application No. PCT/EP2004/005130		International filing date (day/month/year) 12.05.2004	Priority date (day/month/year) 06.06.2003	
International Patent Classification (IPC) or national classification and IPC C11D11/00, C11D3/37, C11D3/22				
Applicant UNILEVER PLC et al				
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> sent to the applicant and to the International Bureau) a total of 4 sheets, as follows:</p> <p><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>				
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>				
Date of submission of the demand 08.12.2004		Date of completion of this report 08.09.2005		
Name and mailing address of the International preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016		Authorized Officer Neys, P Telephone No. +31 70 340-4183		



**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/EP2004/005130

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language, which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages

1-24 as originally filed

Claims, Numbers

1-15 filed with telefax on 05.04.2005

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/EP2004/005130

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-15
	No: Claims	
Inventive step (IS)	Yes: Claims	1-15
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-15
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Re Item V.

The following document is referred to:

D1: US-A-5 486 303

1. None of the cited documents discloses a process as described in claim 1, a detergent component as described in claim 12 or a particulate laundry composition as described in claim 15.

The subject-matter of claims 1-15 is therefore considered to be novel (Article 33(2) PCT).

2. D1 (relevant passages see search report), which is regarded as the most relevant state of the art, discloses a process for making high density detergent agglomerates by mixing a surfactant paste with an anhydrous powder additive, e.g. an absorbent gelling material, and optionally drying the formed agglomerates. The agglomerates comprise at least 40 wt% surfactant.

The subject-matter of claim 1 differs from that of D1 in that a cross-linked polyacrylate is used as superabsorbing agent, an aqueous solution of the detergent component and not a paste should be used, and the drying step is essential.

The remaining problem is to provide an alternative process for producing a particulate detergent component with a high surfactant content.

D1 only refers to absorbent gelling materials in general, but does not contain any indication towards the specific use of cross-linked polyacrylate. Further it is not mentioned in D1 that one can start from an aqueous solution comprising the surfactant to form the agglomerates.

It is therefore not obvious for the skilled person to adapt the process of D1 to come to the subject-matter of claim 1. The subject-matter of claim 1 and its dependent claims 2-11 is therefore considered inventive in view of D1 (Article 33(3) PCT).

3. D1 is also the closest prior art for claim 12.

The subject-matter of claim 12 differs in that cross-linked polyacrylate should be present.

Since D1 does not contain any indication towards the use of cross-linked polyacrylate, the skilled person is not tempted to replace the anhydrous powder additive in D1 with cross-linked polyacrylate.

The subject-matter of claim 12 and its dependent claims 13 and 14 is considered inventive over D1.

4. D1 is also the closest prior art for claim 15.

The same reasoning as under item V.2 and V.3 applies. The subject-matter of claim 15 is regarded inventive in view of D1.

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CLAIMS

1. A process for the preparation of a granular detergent component comprising ^{cross linked polyacrylate} an organic superabsorbing material, which process comprises absorbing an aqueous solution ~~dispersion or emulsion~~ of detergent ingredient on the organic superabsorbing material and removing water by an evaporative process,
- 5
- 10 ~~2~~ A process ~~as claimed in claim 1~~, wherein the component comprises at least 40 wt% of a surfactant or mixture of surfactants, ~~and the aqueous solution is a solution of surfactants.~~
- 15 ~~23~~ A process as claimed in claim 1 ~~or claim 2~~, wherein the detergent ingredient comprises an anionic surfactant.
- 20 ~~34~~ A process as claimed in any preceding claim, wherein the detergent ingredient comprises a nonionic surfactant.
- ~~45~~ A process as claimed in any preceding claim, wherein the detergent ingredient comprises cationic surfactant.
- 25 ~~58~~ A process as claimed in any preceding claim, wherein the detergent ingredient comprises a polymer.
- 30 ~~67~~ A process as claimed in claim ⁵ ~~8~~, wherein the polymer is amphoteric, nonionic or cationic.

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~~8. A process as claimed in any preceding claim, wherein the organic superabsorbent material comprises cross linked polyacrylate.~~

5 77. A process as claimed in any preceding claim, wherein the aqueous solution or dispersion of detergent ingredient contains from 20% to 90% by weight of surfactant.

10 ~~10. A process as claimed in any preceding claim, wherein the detergent component contains between 20% and 75% by weight of surfactant.~~

15 ~~11. A process as claimed in any preceding claim, wherein the detergent component contains 20% and 50% by weight of surfactant.~~

20 8 12. A process as claimed in any preceding claim, wherein the aqueous solution ~~or dispersion~~ of detergent ingredient and the organic superabsorbent material are mixed in a high shear mixer.

25 9. 13. A process as claimed in any preceding claim, wherein the aqueous solution ~~or dispersion~~ of detergent ingredient and the organic superabsorbent material are mixed in a flash thin film evaporator/dryer.

30 ~~10. 14.~~ A process as claimed in any preceding claim, wherein the aqueous solution ~~or dispersion~~ of detergent ingredient and the organic superabsorbent material are mixed in a low shear mixer.

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11 15. A process as claimed in any preceding claim, wherein the maximum temperature of the detergent component during the process is 150°C.

5 ~~16. A process as claimed in any preceding claim, wherein the detergent component is produced in granular form.~~

12 17. A detergent component comprising ^{cross linked polyacrylate} an organic superabsorbing material and a detergent ingredient.

10

~~18. A detergent component as claimed in claim 17, comprising at least 20% by weight of a surfactant or mixture of surfactants.~~

15 19. ^{the} A detergent component ~~as claimed in claim 17 or claim 18~~ comprising between 40% and 90% by weight of a surfactant or mixture of surfactants.

13 20. A detergent component as claimed in claim ¹² 19, comprising between 50% and 75% by weight of a surfactant or mixture of surfactants.

14 21. A detergent component as claimed in any one of claims ¹² 17 to ¹³ 20, which has a number average particle size of from 15 to 1500 microns, preferably from 120 to 500 microns.

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15.22. A particulate laundry detergent composition comprising
in total from 5 to 60 wt% of one or more organic
detergent surfactants, from 10 to 80 wt% of one or more
detergency builders and optionally other detergent
5 ingredients, which composition includes a detergent
component as produced by the process of claims 1 to 16.
~~or as claimed in any one of claims 17 to 21.~~